

Claims

We claim:

1. A method for improving the transmission efficiency of an original video signal transmitted as a plurality of frames said frames containing said video signal encoded in a base layer and an enhancement layer wherein at least one element of said enhancement layer is selectively enhanced by designating said at least one selected element to have a higher priority of transmission, said method comprising:
 - transmitting in a first frame a first set of criteria; and
 - transmitting an indicator in each of said subsequent transmission frames when said selective elements contained therein have substantially the same set of criteria as said first criteria.
2. The method as recited in claim 1 wherein said first criteria includes at least one enhancement factor value.
3. The method as recited in claim 2 wherein said at least one enhancement factor value is applied to each element within in said enhancement layer.
4. The method as recited in claim 2 wherein said at least one enhancement value corresponds to each of said at least one selectively enhanced elements.
5. The method as recited in claim 2 wherein said enhancement factor is power of two.
6. The method as recited in claim 1 wherein said at least one element is a plurality of elements.

7. The method as recited in claim 6 wherein said first criteria includes position, size and enhancement factor value for each of said at least one elements.
8. The method as recited in claim 7 wherein said at least one element position value is selected with respect to a known point.
9. The method as recited in claim 1 wherein said first criteria includes at least one second indicator that indicates a corresponding known value.
10. The method as recited in claim 9 wherein said known values are selected from the group of position, displacement vector, size, enhancement factor.
11. The method as recited in claim 9 wherein said indicator is substantially the same as said second indicator.
12. The method as recited in claim 1 wherein said element comprises a plurality of pixels in an array having an equal number of rows and columns.
13. The method as recited in claim 12 wherein the number of rows is selected from the group of 2, 3, 4, 8, 16.
14. The method as recited in claim 1 wherein said enhancement layer is fine granular scalability encoded.
15. A device for reformatting the frames of a video data stream for improving the transmission efficiency of said video data stream, wherein said data stream includes a base layer and an enhancement layer wherein at least one element of said enhancement layer is selectively enhanced by designating said at least one selected element to have a higher priority of transmission, said device comprising:
means for receiving each of said enhancement layer frames;

means for generating a first set of enhancement criteria associated with a first frame; and

means for generating an indicator in each of said subsequent transmission frames when said selective elements contained therein have substantially the same set of enhancement criteria as said first enhancement criteria.

16. The device as recited in claim 15 wherein said first criteria includes at least one enhancement factor value.
17. The device as recited in claim 16 wherein said at least one enhancement factor value corresponds to each element within in said enhancement layer.
18. The device as recited in claim 16 wherein said at least on shift enhancement value corresponds to each of said at least one selectively enhanced elements.
19. The device as recited in claim 16 wherein said enhancement factor is power of two.
20. The device as recited in claim 15 wherein said at least one element is a plurality of elements.
21. The device as recited in claim 20 wherein said first criteria includes position, size and enhancement factor value for each of said at least one elements.
22. The device as recited in claim 21 wherein said at least one element position value is selected with respect to a known point.
23. The device as recited in claim 15 wherein said first criteria includes at least one second indicator that indicates a corresponding known value.

24. The device as recited in claim 23 wherein said known values are selected from the group of position, displacement vector, size, enhancement factor.
25. The device as recited in claim 23 wherein said indicator is substantially the same as said second indicator.
26. The device as recited in claim 15 wherein said element comprises a plurality of pixels contained in an array having an equal number of rows and columns..
27. The device as recited in claim 26 wherein the number of rows is selected from the group of 2, 3, 4, 8, 16.
28. The device as recited in claim 15 wherein said enhancement layer is fine granular scalability encoded.
29. A apparatus for coding video, said apparatus being operational to improve the transmission efficiency of a video signal transmitted as a plurality of frames said frames containing said video signal encoded in a base layer and an enhancement layer wherein at least one element of said enhancement layer is selectively enhanced by designating said at least one selected element to have a higher priority of transmission, said system comprising:
 - means for transmitting a first set of criteria in a first frame; and
 - means for transmitting an indicator in each of said subsequent transmission frames when said selective elements contained therein have substantially the same set of enhancement criteria as said first enhancement criteria.

30. The apparatus as recited in claim 29 wherein said first criteria includes at least one enhancement factor value.
31. The apparatus as recited in claim 30 wherein said at least one enhancement factor value corresponds to each element within in said enhancement layer.
32. The apparatus as recited in claim 30 wherein said at least on shift enhancement value corresponds to each of said at least one selectively enhanced elements.
33. The apparatus as recited in claim 30 wherein said enhancement factor is power of two.
34. The apparatus as recited in claim 29 wherein said at least one element is composed of a plurality of elements.
35. The apparatus as recited in claim 34 wherein said first criteria includes position, size and enhancement factor value for each of said at least one elements.
36. The apparatus as recited in claim 35 wherein said at least one element position value is selected with respect to a known point.
37. The apparatus as recited in claim 29 wherein said first criteria includes at least one second indicator that indicates a corresponding known value.
38. The apparatus as recited in claim 37 wherein said known values are selected from the group of position, displacement vector, size, enhancement factor.
39. The apparatus as recited in claim 37 wherein said indicator is substantially the same as said second indicator.
40. The apparatus as recited in claim 29 wherein said enhancement layer is fine granular scalability encoded.

41. A system operational to improve the transmission efficiency of a video signal transmitted as a plurality of frames said frames containing said video signal encoded in a base layer and an enhancement layer wherein at least one element of said enhancement layer is selectively enhanced by designating said at least one selected element to have a higher priority of transmission, said system comprising:

means for transmitting a first set of criteria in a first frame having a base layer and an enhancement layer;

means for transmitting an indicator in each of said subsequent transmission frames when said selective elements contained within subsequent transmission frames have substantially the same set of enhancement criteria as said first enhancement criteria.

means for receiving each of said transmitted frames; and

means for applying said first set of enhancement criteria to elements of a received enhancement layer when said indicator is detected in said frame.

42. The system as recited in claim 41 wherein said first criteria includes at least one enhancement factor value.
43. The system as recited in claim 41 wherein said at least one enhancement factor value corresponds to each element within said enhancement layer.
44. The system as recited in claim 41 wherein said at least one shift enhancement value corresponds to each of said at least one selectively enhanced elements.
45. A device for improving the transmission efficiency of an original video signal transmitted as a plurality of frames said frames containing said video signal

encoded in a base layer and an enhancement layer wherein at least one element of said enhancement layer is selectively enhanced by designating said at least one selected element to have a higher priority of transmission, said method comprising:

code for transmitting in a first frame a first set of criteria; and

code transmitting an indicator in each of said subsequent transmission frames when said selective elements contained therein have substantially the same set of criteria as said first criteria.

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